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THE BIRDS OF JAN MAYEN ISLAND.

COMMUNICATED, WITH ANNOTATIONS, BY W. EAGLE CLARKE, F.L.S.
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(Continued from p. 16.)

Uria grylle, L., Black Guillemot.—On the coasts of Norway, as well as in the fjords which we passed, we saw in summer several single "Tysties." At Jan Mayen we saw the first Tysties when we were hardly ten miles distant from the island. In comparison with other northerly birds, the Tysties are seldom met with. On the Vogelberge this species is only poorly represented. I saw a few nests in clefts and small holes at low elevations. On the 6th of December I shot two specimens which were already in winter dress. Out of the many specimens which I had seen or shot there were not two birds in winter dress which were coloured alike. On the 21st of April I shot one black and one white bird. The latter had, however, already more dark feathers than those shot in winter. On the 27th of April these pale birds were met with in great numbers, and only disappeared when the ice had completely surrounded the island. Although the nests of the Tysties were not placed high above the ground, it was difficult to get at them, as we had no ladders; and to get at them from above, we should have had to descend many hundreds of yards; hence, in spite of the utmost efforts, we were only able to get two nests of this breeding bird on Jan Mayen. In

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one nest, found on the 20th of July, there were two already fairly developed young ones; in the other nest there was a dead young one which had hardly hatched. The young birds sat on bare stones without any nest under them. With regard to the relation of *U. mandti* to *U. grylle*, in so far as it is considered a distinct species, or at least a variety, Dr. Finsch has given us a full as well as clearly-defined explanation. The examination of rich material has led us to the same conclusion—namely, that *U. mandtii* is not to be looked upon as a distinct species or variety. The following birds were at our disposal:—Twelve examples from Jan Mayen; two from North Europe; one from England; a typical example from Spitzbergen, in the Berlin Museum; a specimen from Spitzbergen, purchased in Leipzig; one from Novaya Zemlya, from the voyage of Count Wilczek; two from Greenland, from Prof. Gieseke; two from Greenland, from Prof. Reinhardt; and one purchased specimen, also from Greenland. Neither the dimensions of the bill and legs, nor the extent of the white on the primaries, and colour of the bases of the secondary coverts offer constant distinctions. With regard to the tips of the secondaries, which form a white stripe, the view expressed by Malmgren, that this mark is characteristic of birds of the second year, appears to be correct. We had an opportunity of examining some amongst the specimens brought from Jan Mayen, in which the band relied upon is only partly developed—*i. e.*, it was disappearing. A male shot the 4th of June, having quite unspotted wing-spots, had white tips on only four secondaries, which were wanting in all the others. In a specimen in winter plumage, shot on December 14th, in which dark tips on the wing-spots formed almost regular stripes, the front secondaries were ornamented with white tips; the rest were quite dark. Two birds, male and female, shot on the 6th and 12th of December, had exactly the same colouring as the former, only the wing-spots were unspotted and the secondaries were entirely black. A male killed on April 21st had dark spots on the wing-spots and black secondaries unspotted at the ends. This one is in an interesting transition stage, almost the whole upper surface of the region of the throat being black, with broader or narrower edgings; on the back there are a considerable number of new black feathers. [In 'The Ibis,' 1865 (p. 518), Prof. Newton indicates "an unfailing means" of differentiating *U. mandti* from *U. grylle*—namely, that in the former species the feathers forming the conspicuous white wing-spot are pure white at their base; while in *U. grylle* they are always black at their base. The value of this character is not conceded by the authors of this paper, but, unfortunately, they have adduced no evidence against it. These species or races are still recognised as distinct by many British ornithologists.—W. E. C.]

Uria arra, Pallas = *U. brünnichii*, Sabine, Brünnich's Guillemot.—The so-called Loom put in frequent appearance soon after we approached the limits of drift-ice. In small or large companies, swimming or sitting on ice-floes, as well as in flights of from one to four specimens, this bird accompanied us continually in our wanderings for several weeks in the drift-ice. Next to the Grey "Storm Gull" [*P. glacialis*], these birds were most numerously represented. Their nests, if we can so call the rocky ledges on which they deposit their large eggs, without any underlayer, are mostly to be found on perpendicular walls or steep terraced cliffs which are usually approachable only from the sea. On the 14th of July, 1882, I obtained a slightly incubated egg. By the middle of August most of these Auks had departed. On the 20th August I saw some young still in down in the nest, of which I shot a few for the collection. By the beginning of September there were very few Auks to be seen on the Vögelberge, and after the 10th there were no more breeding birds to be met with. About this time a few single ones were still to be seen at sea. On the 11th of October large flights of Auks passed the island; they came, most probably, from more northern breeding-places. On January 16th, 1883, I saw one sitting on a stranded ice-floe. On Jan. 27th I shot an Auk at sea. On February 20th I shot one with an abnormally high and very curved beak. On April 10th I saw three Auks at sea; and on the 20th flights of these birds appeared after the ice had been driven off in a north-westerly direction. They were more shy than previously. The wooing of the females took place amidst much noise and after long battles. On May 17th I obtained an Auk which showed already a spot on the breast, and was discoloured from sitting on the nest. On June 14th I took some eggs, of which some were well incubated. The Auk lays but one large egg; it varies much in form, colour, and marking, and is not always of the same size. The eggs had generally to be taken away from under the birds, which had to be pushed aside. Below the breeding-places were found many smashed eggs, with young in various stages of development, which had been knocked down by the birds during their quarrels. On July 16th I obtained some young from three to four days old; the majority of the birds were, however, still sitting on eggs already cracked: on the 20th I obtained elsewhere some fairly developed young ones. The plaintive piping of the little birds which had fallen from their nests into the water, and which sounds louder than that of any other young bird known to me, reminding one of the piping of a lost chicken, caused the old Auks every time to leave the breeding-places and to drop down after the young ones. As the old ones touched the water, the little ones dived under, and the old ones after them, and shortly they appeared on the surface some distance off, the old birds grouped round the young ones, and apparently reconciled. The young birds, which were often hardly bigger than a Little Auk, were generally quieted thereby; occasionally, however, after a little time, their pitiful cry was resumed, though at greater intervals. It was noticed that the scene above described also took place when the parents as well as the immediate neighbours of the fallen birds had been killed. In late autumn of the previous year half-grown birds were often seen at sea singly. Among the many examples taken was a female shot on Feb. 20th, distinguished by its smaller size and aberrant form of head. The total length of this specimen in the flesh was 40 centimetres; expanse of the wings, 30 c.; length of wing from carpal joint to tip, 18 c.; length of tarsus, 3 c.; length of bill from angle of mouth to tip, 5·5 c. The bill is rather high in proportion to its length, and is more strongly arched. In the lower mandible the angle of the mandible is prominent and is directed upwards. The feathers do not extend to the front of the nasal groove; on each side small white feathers form a narrow stripe from the eye to the base of the bill. The bill and feet of the bird when killed were blue-black. Nothing was seen of the characteristic light longitudinal stripe at the base of the upper mandible. The following Table, in which the measurements of the four smallest and of the largest specimen is noted in centimetres shows how important the dimensions are in this Guillemot:—

	Total length in flesh.	Breadth across wings.	Length of wing, shoulder to tip	Bill from angle of mouth.	Foot.	Remarks.
♀ Winter	35	—	16	4·6	3	Measurements from skin.
♀ Winter	35	32	21	5·3	3	
♀ Winter	43	33·5	22	6·2	3·8	Feet in fresh bird light brown. Beak black. Plumage brilliant blue-black.
♂ Summer	40	33	21	5·8	3·8	
♂ Summer	46	34	22·8	6·4	4	

The flesh of the skinned Auk tastes uncommonly good, and these birds, together with ducks, formed a favourite dish of fresh food. [From the description, and from the figure on the plate, there can be no doubt that this supposed variety of Brünnich's Guillemot was a specimen of the Razorbill—an error concerning the two birds which is not without precedent in arctic Ornithology. The occurrence of this species at Jan Mayen is, however, not without interest, since it is believed that this is the most northerly record within the European Polar Region.—W. E. C.]

Mergulus alle, L., Little Auk.—Met with on our first attempt to land on Jan Mayen, as well as in June near the ice. It supplied our first arctic dish, and was much enjoyed. Numerous in the Vogelberge and in fissures of the lava-fields, and inhabits any small cavities and crevices in the Vogelberge to which it can obtain access. Is met with at a height of a few feet above sea-level as frequently as on the highest peaks of the mountains. During the breeding-season, however, the majority of the birds are obliged to put up with stone-heaps and loam or clay fields ("Lehmfeldern"), depositing its eggs in holes at the depth often of a metre below the surface. On August 31st the birds had nearly departed. On October 15th solitary specimens were seen at a short distance from the shore; none visited the Vogelberge. At the end of November and beginning of December the number seen in the bays was so great that hundreds could have been shot with ease. On Dec. 23rd two specimens were caught alive among drift-wood, having been driven in by the north wind; their nostrils were encrusted with ice, and ice had also formed on the swimming membrane between their toes. From the 23rd December the bay, as well as the sea on the whole north side of the island, was frozen, in consequence of which no birds were seen. On the south coast, where there was still much water free from ice, a few Little Auks remained. On Jan. 13th I saw a few examples near the shore, the ice having scarcely gone. On Feb. 27th dead birds were again found after a strong N.W. wind, as was also the case after a similar wind on Dec. 23rd. A female on Feb. 27th had nearly fully developed ovaries, and the largest eggs were a millimetre in diameter. On April 21st birds were seen on the north coast of the island in fair abundance. The noise made by these small creatures can be heard at a great distance, and in consequence of its high pitch drowns that of all other birds. On April 23rd birds arrived in great flocks. Already, from May 2nd, the birds were to be met with regularly in the Vogelberge and other breeding-places. In the middle of June I found highly-incubated eggs, which were deposited not only on the naked rock, but also on the ice remaining in the crevices. I met, too, with many eggs which were laid in former years and had not been hatched. This bird lays only one light green egg, from which it allows itself to be removed by the hand. On July 16th, besides eggs, young birds were also met with.

Fratercula arctica, L., var. *glacialis*, Leach, Northern Puffin. —On our attempt to reach Jan Mayen in the summer of 1882, these birds were always the last we saw. Only in the closest proximity of the island were they noticed more frequently. In the spring I saw the first specimen, not before May 23rd; after this, however, as in the year before, pretty frequently, and generally in small companies. Until the middle of July these birds were still occupied with nest-building. The nest is built in a cavity, or under a covered projection, or in a crevice, and is formed of quills, which are deposited in several layers in a circle, and nearly cover the site. On July 17th I picked up the first egg; no eggs were to be found in the other nests. On July 23rd I found, in another spot, fairly incubated eggs. The bird lays only one egg. All the specimens of this species, fifteen in number, belong decidedly to the large northern variety described by Dr. Bureau, in his monograph of the *Mormonidæ*, as the variety *glacialis.* In the majority of our specimens the length of wing was 18 centimetres, in the remainder 17 centimetres. * * * * The birds remain on the island from the second half of May until about the beginning of September. In all the specimens examined at this time, of which there were hundreds, the beak was found in full summer phase, without sign of moulting, which would seem to take place therefore after leaving the island.

Procellaria glacialis, L., Fulmar.—On our two passages from Norway to Jan Mayen this bird was a constant companion of the 'Pola.' The birds sat in thousands, employed in the capture of crustacea, on calm spots near the ice and between the drift-ice and the island. It is scarcely possible to form a conception of the numbers breeding on Jan Mayen. This bird breeds here on the perpendicular face of the rock in niches, from which, as a rule, the head only of the sitting bird can be seen projecting. At the end of September some of the birds had departed, and grey-coloured young specimens were now also to be seen frequently. Until Sept. 30th, 1882 the Petrels returned with every south wind to their haunts and were frequently seen (*e. g.*, on Dec. 19th) nearly as numerously represented as in summer. They disappeared with every north wind, though I have seen solitary specimens on days on which the lowest temperatures were recorded. Jan. 18th, 1883.—For several weeks Petrels were then constantly seen. Even temperatures of — 18°, accompanied by north winds of a force of from 5 to 6, did not drive these birds away. This bird forms during the winter the sole food of the Arctic Fox at Jan Mayen. As soon as the bird had disappeared for a few days we saw the fox sneaking around our station, regardless of all precaution. It struck me as singular that neither birds severely wounded and roughly despatched nor those slightly wounded and captured by the dog, expressed either fear or pain by cries; when, on the other hand, one fell a prey to the Arctic Fox, the poor bird cried like a fowl roughly handled by a cook. The bird becomes an easy prey to the fox, both from its curiosity and from its habit of flying very low on the sides of the mountains and cliffs, so that it skims the ground with the tips of its wings. On Feb. 27th, a hurricane suddenly arising from the N.W. after a warm S.E. wind, killed hundreds of these birds; in the morning we found some still living, many already frozen in ravines and under declivities, where they had been blown by the wind and dashed to the ground; their nostrils and eyes were covered with ice, their legs and wings were broken, extravasation of blood was found beneath the skin, and the snow all round was covered with ejected gastric fluid. In the month of March the temperature remained at between – 10° and – 22°, and the sea was at times completely frozen, and comparatively few or no Petrels were to be seen. Of specimens shot after March 13th the ovaries were already fairly devoloped, the eggs being 1·5 mm. in diameter. In April, May and June Petrels were often met with; as early as June 17th I found eggs deposited without any nest on the bare rock. This species lays a large white egg, which it defends by discharging an oily secretion. The majority of the birds do not abandon the nesting-site after the eggs have been taken, and if pushed off crawl back underneath the arms and legs of the plunderer. Though I have seen this bird in all situations, and can positively say that for fifteen months I have had *P. glacialis* continually under my notice, I have never seen one dive below the surface. The bird may push its head underwater in order to rescue sinking prey, but it never dives completely under the surface. An albino male shot on June 21st had only a grey spot on and under the wing-coverts, especially conspicuous on the right side; no deviations in respect to colour of iris, beak and foot. Among the skins procured is a series of young in down; the first young birds were taken on July 20th.

Stercorarius pomarinus, Tem., Pomatorine Skua.—Several examples were seen inland in August, 1882. I shot a specimen on Aug. 10th, but did not skin it.

Stercorarius parasiticus, L., Richardson's Skua.—The first examples of this species appeared at Jan Mayen on June 2nd. It is numerously represented and breeds on the island, but the nest was not found. I noticed a specimen of the dark variety in the month of June for a long time, but the bird being very cautious I failed to capture it.

Stercorarius cephus, Brünnich, Buffon's Skua.—A pair of this species was noticed among the Sea-swallows on the South Lagoon in July, 1883. The male was shot, and the female was not seen again.

Larus glaucus, Brünnich, Glaucous Gull.—During the passage from Tromsö to Jan Mayen we noticed this bird neither at sea nor on the ice. The first were seen in the immediate proximity of the island. Twenty to twenty-five pairs of this species, and not more, breed on Jan Mayen. The first young gulls I noticed on the shore in the first days of August, 1882, where, under the care of the parents, they were devouring cast-up animal remains. Both old as well as young birds were seen as long as the sea was free from ice—*i. e.*, until December. On Jan. 22nd, 1883, I shot a young specimen at sea, as also on March 17th. On April 1st I saw a young bird. During the night I repeatedly heard the call of this gull, which now frequented the Vogelberge, and no longer departed. On June 20th three nearly fully incubated eggs were found in the nests, which were built on peaks very difficult to approach, and consisted of a layer of moss. On July 15th we took young gulls out of several nests showing a complete series of developmental stages. The young leave the nest as soon as they can fly, and walk freely about on the rocks. Both males and females defend the brood, and will even pursue the plunderers for hours. Of three living young specimens which I kept in a small coop near my tent, one was visited by its parents for several days; this bird also on one occasion followed the parents from my station to the sea, a distance of 600 paces, and was only recaptured after much trouble; the same bird, too, usually became excited on hearing the call of its parents, while the two others, their heads bent sideways, looked on with perfect indifference. This gull seldom dares to attack healthy birds, but those wounded or injured by falling pieces of rock are recognised as easy prey and immediately attacked, even though they may swim about on the sea in an apparently sound condition. Young birds that have fallen out of the nest, as well as the leavings of the Arctic Fox,—which when prey is abundant consumes only the entrails,—likewise supply abundant nourishment for this bird, which is otherwise contented with carrion of any kind. Of this high northern species, which winters also in Iceland and Greenland, young specimens in different stages of transition were procured; three live young ones were sent to the Imperial Menagerie at Schönbrunn. Among the skins are some completely in full plumage, others in young dress, as pictured by Naumann (plate 264, fig. 3), and one intermediate, in which the brownish coloration of the spots has become very faint, partly shading off into cream-colour, and in parts has quite disappeared. Eggs and young in down were also procured. As a remarkable circumstance may be here mentioned the capture of a female of this species in full plumage on Lake Ossiach, in Carniola, on Jan. 2nd, 1884.

Larus leucopterus, Faber, Iceland Gull,—As abundant as the preceding, and frequently observed in its company. This is especially the case with the young birds which occasionally appear in winter at sea in pairs, one of this and one of the preceding species. This gull nests on low ledges, which often scarcely project above high-water mark. In mode of life this species resembles the last. *L. leucopterus* inhabits only the North Polar Sea, Iceland, Greenland, and the coasts of North America, but in the east is absent from Spitzbergen and Novaya Zemlya. We obtained specimens in all stages of plumage, from the young dress, which is darker than that represented by Naumann (pl. 265, fig. 3), through the most varied transitional stages, to that of the adult. [This bird is only a winter visitor to Iceland, and Jan Mayen appears to be the only breeding station for this species within the European Polar Regions, a fact hitherto unnoticed. Mr. Howard Saunders, in his 'Manual of British Birds,' p. 666, says, "during the breeding season it appears to be confined to Greenland and the arctic regions of America."—W. E. C.]

Larus argentatus, Brünnich, Herring Gull.—On June 23rd we captured a female in young dress and with undeveloped ovaries. In the autumn this gull was met with for a short time in larger companies in a bight near the Vogelberge Crater. This gull belongs to lower latitudes than the preceding, advancing in Scandinavia to 66° N., and is absent from Iceland. Isolated cases of its occurrence are those from North America, and that of Jan Mayen here recorded.

Pagophila eburnea, Phipps, Ivory Gull.—I saw the first gulls of this species on May 3rd, 1883, under the walls of the N.W. Cape; they were seen on this day both in pairs and singly, although not known to breed on Jan Mayen. Of this species, which belongs to the extreme north of Europe and America, two young birds from Greenland are in the Imperial Collection; one from the north of Novaya Zemlya, from the Voyage of Count Wilczek, and a pair of unknown origin. One was captured on Neusiedler See, in Hungary, when the fish were dying owing to the falling of the water. ('Abhandlungen des Vereins für Naturkunde in Pressburg,' 1864, 1865.)

Rissa tridactyla, L., Kittiwake.—Observed in the North Sea, in the Norwegian fjords, especially numerous at Tromsö; rarely seen near the ice. At Jan Mayen breeds in fair numbers in a few low-lying districts. It is the only bird at Jan Mayen which builds a large and durable nest, though quite devoid of artistic pretensions. * * * The nest is placed against the projecting ledges of the cliffs and consists of moss, grass-blades, and mud, of which mixture a new layer is added annually, and thus gradually consists of parallel layers which can be easily separated. The bird lays two eggs. On June 19th these were already partly incubated; on July 25th young birds were taken. Isolated specimens were noted in late autumn and in winter. Two specimens were shot at sea on Feb. 20th, and we saw several at sea on April 5th, and on May 3rd. They were to be seen in numbers from May 17th, and were already busy nest-building. This species was constantly accompanied by the Robber Gull [? *S. parasiticus*].

Xema Sabinii, Sabine, Sabine's Gull.—Eyelids coral-red; iris brown; feet black; apex of bill horn-yellow, base of bill black. Single specimens of this species appeared now and then at Jan Mayen, but did not remain for long. The males in full breeding plumage. This species, which is generally distributed in high northern latitudes, on the west coast of America, travels rather further south, even to 8° S. lat." (Saunders, Proc. Zool. Soc. 1878, 219). On the east coast of America and the west of Europe it advances much less south. A specimen shot near Mölks, and another shot in Hungary, in the Pesth Museum, form isolated cases of its occurrence on the continent of Europe (Newald, Mitt. Orn. Ver. in Wien, 1878, p. 26; Hermann, Természetrajzi fuzetek, 1879, 2—3, 92, und Rev. 184, t. 4).

Sterna macrura, Naumann, Arctic Tern.—Frequently met with in the summer months singly and in pairs or small parties. The birds sat in larger numbers on the sand-banks near the South Lagoon; nests I could not find. The examples procured were in summer plumage.

NOTES ON THE TERRESTRIAL MAMMALS OF BARBADOS.

By Colonel H. W. Feilden, F.G.S.

In 'The Zoologist' for 1889 (pp. 295—298) I published some remarks on the terrestrial reptiles inhabiting the island of Barbados, and there briefly gave my reasons why Barbados should be designated an oceanic island, in the sense that it has had no continental connection since the introduction of its present fauna and flora. Barbados is an interesting example of an island which has received its terrestrial animals and plants from the effects of ocean currents, winds, accidental occurrences, or by the agency of man. Its reptilian fauna certainly bears out this view, and when we come to examine the mammals now inhabiting the island the same conclusion must be arrived at.

The number of mammals I found in the island, reproducing their species in a state of nature, is eight—namely, a Monkey, Racoon, Mongoose, Rat, Mouse, two species of Bats, and the European Hare. Sir Richard Schomburgk, in his 'History of Barbados,' published in 1848, writes as follows:—"The scarcity of birds in the island of Barbados is only surpassed by the rarity of quadrupeds. If we except domestic animals, Barbados possesses five genera of terrestrial animals, comprising only a few more species in number. The most interesting is the Barbados Monkey, now nearly extinct, although formerly so frequent that the legislature set a price upon its head. I have much to regret, on account of Natural History, that my endeavours to procure a specimen for the purpose of determining the species have entirely failed. From the outer appearance of a living specimen, I consider it to be *Cebus capucinus*, Geoff., the Sai or Weeper, or a very closely-allied species. It is not likely that it was introduced, as the first settlers found it in large numbers on their arrival. The Racoon, *Procyon lotor*, Cuv., is now equally scarce, although formerly so abundant that they were included in the legislative enactment for extirpation. If we add to this two animals, perhaps an indigenous Mouse and two species of Bats, we come, as far as my knowledge extends, to the end of our enumeration of indigenous Mammalia."

This account by Sir Richard Schomburgk of the Mammalia inhabiting Barbados is misleading, and his statements are not borne out on investigation. The Monkey which he suggested to be a South American species, and which is still found in some numbers in the more inaccessible parts of the island, is an Old World form, the Green Monkey, *Cercopithecus callitrichus*, Is. Geoffr., and its original habitat is the West of Africa. This undoubtedly proves its introduction to Barbados by the Guinea trading-ships. I cannot discover any warrant for Schomburgk's statement that this animal was found in large numbers by the first settlers on their arrival. Ligon, in his 'True and Exact History of Barbados,' published in 1657, only thirty-two years after the landing of the first settlers, makes no mention of a Monkey in his remarks on the birds, beasts, and insects of the island, and it is unreasonable to suppose that a writer of his undoubted sagacity and power of observation, particularly with reference to all the living creatures he met with, should have neglected to make some remarks about a Monkey, had it then been found in large numbers in the island. Hughes, in his 'Natural History of Barbados,' published 1750, includes the Monkey, so that it must have been introduced, and become feral in the island between the periods of these two writers.

The Racoon, which is still found in the cliffs, glens, and rocky parts of the island in considerable numbers, is, as might be expected, the South American form, *Procyon cancrivorus;* its introduction from the South American continent, on a raft drifted by the influence of oceanic currents is possible, though its presence may be due to the direct agency of man. I am not aware that this animal is found in a state of nature in any other West Indian island, which is another proof of its recent introduction to Barbados.

I only met with one species of Rat, abundant enough about the town of Bridgetown and in the Garrison—namely, *Mus decumanus*.

I entirely failed, in spite of assistance from several friends,—planters in the island,—to obtain any evidence of an indigenous Mouse. I received many examples captured in the fields, and caught several myself; they all proved to be the common House Mouse, *Mus musculus*, though their coats were in some instances redder than usual—the result, probably, of greater exposure to a tropical sun than their stay-at-home relatives enjoy. This negative evidence does not preclude the possibility of there being an indigenous Mouse in the island, though I think it unlikely.

The Mongoose, introduced a few years ago for the purpose of stemming the ravages committed by the Rats in the cane-fields, has done the work effectually; it is now very rare to see damage done to the growing canes by rats. The introduction of the Mongoose has not, however, been an unmixed blessing; it has largely increased and spread over the entire island; it plays havoc amongst poultry, especially with young turkeys and guinea-fowl. I was also informed that it had taken to devouring *Centropyx intermedius*, the "Iguana Lizard." I am unable to determine which species of *Herpestes* is the one introduced and now flourishing in Barbados; I did not obtain a specimen for identification, as there is an Act of the Legislature protecting them. The coloured people dread the bite of the Mongoose, and many of them believe that it may bring on rabies in individuals: I cannot say whether there are the slightest grounds for their apprehension.

I am indebted to Dr. Sinclair Browne, M.D., of Barbados, for the following information in regard to the introduction of the European Hare. Examples were brought to the island from England by Mr. Thomas Trotman in 1842, and kept in an enclosure on the Bulkeley Estate, in St. George's parish. In this enclosure they bred; after a very heavy rainfall the enclosure broke down and the Hares escaped. From thence they spread all over the island and increased rapidly, for in those days the negroes did not possess firearms, as they do now. Twenty years ago Dr. Browne remembered a man in St. Philip's parish who used to shoot from two to three hundred Hares annually. They are not so numerous now, owing to the more general possession of firearms by the coloured people, but more from the increase in the number of the Mongoose during the last ten years. Dr. Browne informed me that the Mongoose undoubtedly destroys a large number of leverets and half-grown Hares. The Hare in Barbados attains a good weight, sometimes twelve pounds. Dr. Browne has evidence that they breed during each month of the year; they generally have one or two young.

The Rabbit, *Lepus cuniculus*, has not succeeded in a feral condition in Barbados; they increase rapidly at first, but mange soon attacks the old ones, and the rats kill the young before they are old enough to leave their burrows.

The two species of Bats I have found in Barbados are *Brachyphylla cavernarum*, Gray, a fruit-eater, which is certainly not common; it is known locally as "Night-raven." There are specimens of this species in the British Museum, from Cuba, St. Vincent, and other parts of the West Indies. The second is *Molossus obscurus*, Geoffr., a common species throughout the West Indies; it is very abundant in Barbados, and constantly to be seen on the wing immediately after sunset. I shot many specimens, for on the wing there seemed to be a great difference in size between examples flying in company, but all I procured belonged to this species. It is possible that there may be more than two species of Bats in Barbados, for the individuals to be seen flying about at sunset and sunrise are in immense numbers, but I only secured the two kinds here recorded.

I may add that in all my excavations in caves and kitchen-middens the only remains of land-animals that I came across were bones of man, generally broken up and charred, proving the cannibalistic propensities of the old inhabitants.

The following is the list, so far as my observations go, of the feral terrestrial Mammalia of Barbados:—

Cercopithecus callitrichus, Is. Geoffr. Hab. West Africa.
Brachyphylla cavernarum, Gray. Hab. West Indies.
Molossus obscurus, Geoffr. Hab. West Indies.
Herpestes ——— ? Hab. Old World.
Procyon cancrivorus (Cuvier). Hab. South America.
Mus decumanus, Pall. Hab. Old World.
Mus musculus, Linn. Hab. Europe.
Lepus europæus, Pallas. Hab. Europe.

ORNITHOLOGICAL NOTES FROM NORFOLK.

By J. H. Gurney, Jun., F.Z.S.

The following diary of ornithological events for the second half of the year 1889 comprises all that is likely to be considered of more than local interest. The absence of the Willow Wrens, usually so common a species, was very marked last autumn at Cley, more so than I ever remember it before, as its presence forms quite a feature of our coast migration, and we generally see them passing in great numbers. The duties of a local recorder seem to me to be, not only to notify rare birds, but also to report the unusual absence of common ones.

On July 9th a Crossbill flew into a cottage at Northrepps, a young bird, probably bred in the county. About the same time, as I learn from Mr. Southwell, one flew into a greenhouse at Neatishead. Crossbills have been very abundant of late in various parts of England, and from a reliable source I have received particulars of their nesting in the county, though it may be as well not to mention the precise locality. The Northrepps bird, which very quickly changed from the streaked to the yellow plumage, is still alive in my father's possession. There was a spot of red on its nape when it was caught, which disappeared with the immature plumage (*cf.* Zool. 391). An immature streaked Crossbill which I shot in August, 1866, had a spot of yellow on its crown. I mention these spots with reference to the correspondence which has appeared between Messrs. Macpherson and Howse, and will only add that I for one can see no reason why every male Crossbill should pass through a red plumage to reach a yellow one or *vice versâ;* indeed I doubt their ever passing from yellow to red. [If this be so, then the bird now living at Northrepps, which "quickly changed from the streaked to the yellow plumage," *ut supra,* will never become red, which seems almost too much to predict.—Ed.]

On July 18th, a Sparrowhawk's nest, from Hempstead, from which the young had been taken, contained remains of Pheasant, Partridge, Robin, Sparrow, Thrush, Chaffinch, Sky Lark, Wren, Redstart, a warbler of some kind, and a mouse. On July 30th eight Great Crested Grebes and several Shovellers were seen on Ranworth Broad. No Garganeys appeared there this year.

On August 1st several Curlew Sandpipers, *Tringa subarquata,* retaining more or less of the red dress of summer, were shot at Cley and Yarmouth. On the 2nd I shot a Grasshopper Warbler on one of the Broads—not a common bird with us by any means. On the 5th Mr. Upcher shot a Sabine's Snipe at Hockwold, which has been preserved by Mr. Gunn—the second of this variety for Norfolk, and a very good specimen. I have been informed on good authority of a case in the South of England, several years ago, in which a clutch of four Snipe's eggs produced, as is believed, four "Sabine's Snipes," all of which were secured and preserved.

[We should be glad of particulars.—Ed.] The Norfolk bird above referred to seems to have had no other companions.

On August 11th, a Pintail was shot at Cley, and a Little Bustard at Waxham. On the 13th a white Sand Martin and a young Purple Sandpiper were shot at Cley. Another white Sand Martin, or perhaps the same, was seen by Mr. R. B. Sharpe at Yarmouth on July 17th. On Aug. 19th, Mr. Smith, the taxidermist, of Great Yarmouth, informed me of a hybrid Linnet and Greenfinch (a cross which has occurred in Norfolk before) having been taken at Yarmouth. In the beak, wings, and tail it resembled a Greenfinch, but the back and breast are similar to a Linnet, much like a specimen which my father had alive (Zool., 1887, p. 267). I shot a couple of Greenshanks at Cley on Aug. 29th, and saw a Wood Sandpiper and a Little Stint.

On Sept. 1st a male Two-barred Crossbill was shot at Burgh, near Yarmouth. It is very brightly coloured, and with the lesser wing-coverts a deep plum-colour, the two alar bars well developed. From its stout bill and other marks it is evidently *Loxia bifasciata*. The Rev. Mr. Benson, I observe, mentions (p. 18) others in Surrey, and one in Yorkshire. On the 2nd a Tawny Pipit, an old bird in change, was caught near Lowestoft, but only survived its capture a few days. I had an opportunity, in company with Sir Edward and Prof. Newton, of examining this rare bird, and am indebted to the former gentleman for the notice of its capture. *Anthus campestris* has not previously been identified in either Norfolk or Suffolk. On Sept. 3rd Mr. George Power saw a Crossbill at Cley, close to the beach, and some Pied Flycatchers.

Migration in full swing on the coast on Sept. 5th. In a comparatively short walk Mr. Power and I saw four Bluethroats, one Ortolan Bunting (which I shot), one Lesser Whitethroat, about thirty young Pied Flycatchers, at least 100 Redstarts, and a few Whinchats and Greater Whitethroats. The Ortolan was a young bird resembling Mr. Dresser's figure in the 'Birds of Europe' (iv. pl. 215), but rather more streaked. The wind was N.W. the night before, but was N.E. when it was shot. Mr. Power's quick ear caught its note, which led to our obtaining it. Length 6 in.; expanse, 10; claws, mouth, and beak, directly after it was shot, pale pink; eyes dark brown. Some yellow feathers on the chin faded soon after Mr. Gunn stuffed it for me.

On Sept. 7th two Bluethroats and a Garden Warbler were seen in the saltwort-bushes by the sea. On the 9th fourteen more Bluethroats were seen in the same bushes by Mr. F. Barclay, who shot six of them, all immature birds. He says there were a great many Redstarts with them: a female Black Redstart was shot during this month. On Sept. 17th my father saw the first Hooded Crow at Northrepps.

On October 6th a young male of Sabine's Gull was shot at Hickling while consorting with some Lapwings—very immature in respect of its plumage. On the 10th a Little Bittern was shot at Runham. About the 15th of this month Lord Lilford was informed by a good observer (Mr. G. Hunt) of hundreds of passing Chaffinches, and many Jackdaws among the sand-hills near Hunstanton, and a flock of Sand Grouse which "rose at his feet."

On October 22nd a Lapland Bunting (a remarkably small one) was caught at Lowestoft, and a Grey Shrike on the Leman-and-Ower light-vessel, the wing of which was sent me by Mr. Cordeaux, and shortly afterwards Mr. Smith reported several Grey Shrikes seen near Yarmouth. About this date a large arrival of Goldcrests was reported on the coast at and near Waxham; three or four were cut down with a whip, and a fence near the sea is said to have swarmed with them. One which flew into a house at Yarmouth, on the 24th, was taken to Mr. Lowne. Mr. Smith caught another in his garden, and at Cley some boys knocked down twelve with bacuba canes, and took them to a local naturalist. I hear from correspondents of their abundance at Harwich, in Essex, and Scarborough, in Yorkshire. The last great migration we had was in 1882, when I saw hedgerows about a quarter of a mile from the cliff full of these little birds.

I hear from Mr. George Smith that on November 7th a Short-toed Lark was shot on the South Breydon marshes. Some are reported to have been caught alive in Devonshire shortly before ('Field' of Nov. 9th, 1889, p. 667). On Nov. 10th an Egyptian Goose was shot at Cley, and three others were seen.

On December 4th eleven Sand Grouse were seen at Docking by Sir William Ffolkes. On the 12th a female Shoveller was shot at Cley.

SOME UNPUBLISHED LETTERS ON ORNITHOLOGY,

ADDRESSED TO MR. JOHN CORDEAUX, BY THE LATE COL. RUSSELL, OF STUBBERS, NEAR ROMFORD, ESSEX.

Stubbers, Romford, 19th June, 1880.

SINCE writing to you the other day I found some notes which I had forgotten.

Feb. 16th, 1880. Heard that there had been thousands of Wigeon on that day on the coast. They were yellow-bellied. I have heard the fen people attribute the yellow colour often seen on the under parts of Teal and Wigeon to their having been on the coast; the coast people think they have been on the fens. I think the latter more likely to be right, as nothing seems so likely to give the colour as peat-stained water. I was not on the coast then, but on my return saw a very few Wigeon on Feb. 21st. I was on the coast great part of the time till March 15th, and, as I said before, saw only four Wigeon. Those seen on the 21st were probably the last of the flight which came (or began to come) on Feb. 16th.

March 1st. Saw two flocks of Lapwings on the Blackwater river (many had passed southward Dec. 2nd). 13th. A Starling came on board at sunset. 15th. Saw many Loons (Red-throated Divers),—more than at any time in winter,—Oxbirds, a few Grey Plover, but no Knots about; we had very few of these last through the season. I do not know whether the question has ever been decided whether the red throat of the Diver is seasonal or mature plumage (Yarrell seemed uncertain). I have never seen a trace of the red colour in winter, but have seen it in spring: this would suit either opinion. But I shot one last autumn (I think in October) which showed some red, and it seemed to me evidently in the course of disappearing. I sent it to a friend who had it skinned, I believe. Should you like to see the skin?

I now send you the proportion of young and old Brent Geese killed at different times last winter, 1879–1880. I shot 113, my man 51. Of the whole 164, 45 were old, 119 young. Except in one case, I only made a note at the end of the time of getting them. In October, November, and December, up to Dec. 6th, one old, ten young; to Dec. 18th, twenty old, fifty-five young; to end of December, six old, twenty-four young; Jan. 10th to

19th, thirteen old, thirteen young; to Feb. 4th, five old, sixteen young; March, one young. (I am not sure that the second lot, to Dec. 18th, is quite accurate, as I forgot to count, and it was done for me at home when away.) I think that the proportion of old geese was greater in January than earlier; but one man told me about that time that he was getting more young than old. Old and young are always mixed in the flocks, and when there are a fair proportion of young, it is not often we get half-a-dozen out of a flock throughout the season without old and young among them. Of course there is much chance in this; those shot out of a flock may not show the same proportion as the whole lot would. I heard of ten old out of fourteen being killed when we were getting mostly young ones last winter. On Dec. 2nd several of us shot together at a flock, and got forty, seven of them old ones. It is noticed that the geese shot some distance off at sea on calm nights are apt to have a larger proportion of old birds than those which—probably because there are more young ones among them—are tame enough to be shot at by day.

The almost entire absence of young birds in some years does not depend on the weather; it has occurred in mild as well as sharp winters. 1874-5, 1870-1, and 1879-80 were severe, and young geese abounded in these years. The most complete failure I have known was somewhere about 1847, I think; there was one week or so very sharp, the rest of the season mild. Throughout the winter I only heard of one young one out of some thousands being killed. The winter before last (1878-9) was the worst excepting one during the last fourteen or fifteen years. The first shot were two out of three young, but those shot next told a different story. I shot sixty-five altogether, twelve of them young; but this was not the proportion of the whole, or anything like it. Many of my geese were got out of small lots, probably families, which, being mostly young, were tamer than the others, and swam nearer inshore at high-water. In shooting at big lots collected together, a fairer sample was got. In two shots at big lots,—one on the water, the other on the mud,—I got ten and fifteen; two young ones among the twenty-five. Some others got shots at flocks. and had a still smaller proportion of young ones.

On Feb. 4th, 1879, a large number of White-bellied Geese came, probably from the south, as just before coming to us they appeared at Leigh, on the north side of the mouth of the Thames; there is little or no feed for them there, and only geese which do not know the country call there, but of course do not stay long. Their ignorance was also shown by their foolishness when they came on our coast; a great many were shot for five days, but these were very thin. Most likely they had been southward, but had failed to find a good feeding-ground. I was not on the coast till about Feb. 20th; by that time the White-bellied Geese were fat and almost unapproachable; they were then mixed with the black sort. They stayed, to my knowledge, till March 15th, I believe much longer. As usual the white-bellied had no more young with them than the black. If, as I suppose, the two varieties are bred in different parts of the world, the cause of failure of breed must be wide-spread. I wonder whether those who have been at their breeding-places have noticed which variety they saw. I think I told you that we have not only the two well-marked varieties, but every intermediate shade—perhaps from intermediate places.

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It would be interesting to know whether the young birds breed their second year. Any naturalist who has been at the breeding-places would hardly fail to notice this, as they keep the white-tipped secondaries, tertiaries, &c., till they leave us, and they can hardly have lost them all by nesting-time. I have now and then seen a white-tipped feather or two remaining on birds otherwise in mature plumage. I take these to be birds in their second winter.

A passage from a letter of a correspondent, received some time back, may interest you — speaking of Wigeon:—"They are handsome birds, and it is a pretty sight to see them when they have young. Though you may not have previously seen the cock, no sooner do you disturb the hen, either with her brood or off her nest, than he immediately makes his appearance and is very noisy. They are rather late breeders; I think the earliest brood I have seen was in the first week in June in Sutherland." I must write and ask the writer whether the males are "handsome birds" then. I thought they lost their gay plumage about the time the female lays.

Some time, at your convenience, I should be glad to hear something about your last change of "close-time" for wildfowl, and how you think it likely to answer. With regard to the protection of rare birds from collectors, it seems to me that it would be better to legislate for them separately, though, in the present state of opinion, I doubt if any penalty would have much effect. If the thing is to be done at all by legislation, those rare birds only which are likely to breed here if unmolested should be protected by a very heavy penalty, which might apply to killing them at any time. No penalty applicable to the cases of some of the birds now protected will have any effect while we protect, by the same law, birds like the common Godwit, Whimbrel, Wild Goose, &c.,—birds which will never breed here, and in some places the best time—indeed the only time—to shoot them is during their spring passage. Godwits do not appear on our coast in the spring passage. Whimbrel do, very fat, and in flocks in May. On their return they are only seen as scattered stragglers, and no one shoots any then. So few Whimbrel, however, appear with us in spring that they are of no great consequence; but in some parts, as the West of Ireland, I hear that they and the common Godwits come in dense flocks from the last week in April, all through May; not one-tenth of the number are seen in autumn. The case of the Grey Geese in Ireland and Scotland, I dare say, you have seen published in 'The Field.' The position of the scientific enquirer is a hard one, especially with regard to common birds which will never breed here. A system of granting licenses might answer; but it would be very difficult to discriminate between the man of science and the mere collector. It would hardly answer to expect magistrates to know where they ought to inflict a heavy penalty, if they had the power of doing so. By-the-way, the time of migration of the Common Godwit is a puzzle that wants clearing up.

Stubbers, Romford, 31st March, 1882.

I have been thinking of writing to you for a long time, but had not much to tell you about the movements of birds.

I am much obliged to you for sending the very interesting 'Report of the Committee.' I had seen the 'Report on the Migration of Birds in the Spring and Autumn of 1880' advertised, and ordered it. I have since got it. Mr. ——'s notes, which failed to reach you last year, were not, I think, of very much interest. I enclosed them in a letter to you, but do not remember whether I posted the letter myself or not.

I now enclose copy of some more notes by him. Last September I sailed to the Deben River, took him with me, and stopped there a few days; then came away, leaving him there, before many migrant birds came. The Godwits (two) were on the mud near my boat. My man took him in a punt to them; they were very tame: he waited till they walked together, and shot both with one barrel of a small gun. I watched them with a telescope, and saw one pull a reddish worm out of the mud, take it to the edge of the water, wash, and swallow it. As the bird's bill pointed straight to me, I could not see whether its action in eating the worm was the same as the Snipe's. I shot the Plover and Knot next day out of a flock of about twelve, mostly Plover. One Godwit was with them. There were very few birds there of this class. I think there is a mistake in the date of the Grey Geese; if I remember rightly they were seen on the 23rd.

The earliest Brent Geese I could hear of last autumn, on the Essex coast, were seen or heard about Oct. 8th or 9th. When I sailed into the Deben River, about Sept. 20th last, I asked a pilot whether any wildfowl had been seen; he said that he had seen a "Black Goose" a day or two before. A fisherman who lives there, named Frost, does some shooting, and is well acquainted with birds. Soon after I told this man what the pilot had said, and asked him whether he believed it; he said at once, No,—that he had seen the bird himself, and that it was a Cormorant.

I have little doubt that a similar mistake was made in the Report from the 'Cortin' light-vessel, of Black Geese in July, some three years back I think. Black Geese are well known about the mouth of the Deben, as they frequent that part of the coast, feeding on the drift-weed, *Zostera* (their only food on this coast), between the Orwell and Stour Rivers, the mouths of which are at Harwich, close by. I sailed to Lowestoft last summer, and think that the Brent Geese are very unlikely to frequent that part of the coast, as there is nothing for them to eat there; and Cormorants are likely to be passing in July—they are abundant on the Essex coast by August 1st.

A report I had of a Woodcock settling in a tree looks rather incredible; it was said to have been seen by Frost (already mentioned). He said he was sure it was not an owl. He is a pretty good judge of birds: for instance, some small birds were flying overhead; he was asked what they were, and replied Goldfinches. —— shot one to see, and it was a Goldfinch. The *tree*, I think, was a scrubby bush of willow. I have not seen the man since to question him.

The Brent Geese seem to come to the Essex coast pretty regularly about the beginning of the second week in October. Sometimes the first I hear of are not seen at all; with a fair light wind they may be heard miles off at sea, far out of sight. In October, 1880, my informant, a very experienced gunner, told me he was afraid there were no young ones; he was right,—throughout the season, from the time of their first arrival, there was not one young one to a hundred old ones. Last October my informant about their arrival was another gunner, who lives close to high-water mark in the part most frequented by the geese; he told me that there were young ones among them. These men are pretty close observers of some things; they know when there are young among the geese by their *voices*. I soon had an opportunity of verifying the presence of young geese—some time in October last, I think—by examining a small flock of fifteen or twenty with a telescope, the sun shining on them. By watching them as they turned their sides to the sun, I could make out that something like half of them were young of the year. As far as I could find out, this was about the proportion all through the season; I think there were nearly, but not quite, as many young as old. I only shot eighteen, seven of them young. Other people's experience was much the same. To repeat the proportions for the last four winters, we had:—

1878—79, about one young goose to twelve old ones.
1879—80, great numbers of young all the season.
1880—81, about (or less than) one young goose to a hundred old ones.
1881—82, nearly as many young as old.
(Young very numerous almost every season for about twelve years up to 1878).

I do not think that of these birds the young and old migrate separately; they generally appear about the same date, sometimes all old, sometimes old and young together, and the presence or absence of young remains the same all through the winter. Young ones alone, so far as I can find out, never come to us without old ones among them. If young ones came alone, they would sometimes be tame; but on their first appearance they are always very wild, commonly even wilder than they are in March, so that they are rarely shot when they first come: when any are shot there are always some old ones among them (when not all old). Although my observation and information is chiefly in one place, yet the birds change a good deal; from 100 to 300 or more come in October, and we have fresh arrivals at various times in the winter from the North,—and after severe weather breaks up great numbers more come, probably from the South,—yet the abundance or scarcity of young ones remains the same as when they first appear, and prevails alike, or nearly so, in the black- and white-bellied races.

The mildness or coldness of the winter has nothing whatever to do with the presence or absence of young Brent Geese. I have kept no record, but remember that throughout some of the most severe winters I have known the young ones have abounded —for instance 1855-56 and 1870-71. On the other hand, in some of the mildest winters there has been a nearly complete absence of young Brent Geese; and when they are nearly all old ones, and the weather mild, of course very few are shot. One very mild winter (I forget the date, within the last ten years I think) I shot sixteen; one was a young one—I only heard of three or four young being got on our coast. Mr. J. Wiseman was shooting in Holland that winter; he got 500 or 600 Black Geese; only one was a young one. I feel confident that, had we any means of finding out, when the young fail to appear here they are also absent in all places frequented by these birds in Western Europe, and doubtless the same will be the case on the eastern coast of North America. I hear from Mr. Sharpe that all the Brent Geese sent by Capt. Feilden to the British Museum, from Grinnell Land, are white-bellied.

The most complete absence of young Brents was in a season when many old ones were killed (about 1846, '47, or '48); weather mild, except a week of sharp frost (in January I think). One man shot thirty dozen Brent Geese in that week; he did not see a young one all the season. I only heard of one being shot by anyone on the Essex coast that winter. Many old ones also were shot after the frost. I got five dozen in the week following the frost, in quite mild weather. I forget whether many geese were got before the frost.

Capt. Feilden says (in his Appendix to Capt. Nares' book) that the Brent Geese gather into flocks of old and young while the latter are small. The old ones lose their quills early in July, and the new quills are full grown in a month, so old and young can fly about the same time, and from what we observe here I think they migrate together. Early in the autumn they come; some in flocks of 100 or more, some in quite small lots; the latter may probably often be families which have been isolated in the breeding places. Seven is a very common number, and is, according to Feilden, the usual number of a family, young and old. We do not often have a chance of finding out how many old and young are in these small lots, but they never seem to be all young. If several are shot, at least one is almost always an old one. In one case a man killed six young at a shot out of nine when they first came; he said that one of the old ones, after flying away, came back and flew round the others, apparently trying to get them away.

The companies of Brent Geese, as they arrive, often I think associate together all the winter, especially if there is no frost. They are mostly scattered over the sea, picking up the drifting weed. When a good width of mud has ebbed dry, the geese collect on it—a few at first; then more keep coming to them in lots of from three or four to a hundred or more, until perhaps there are some thousands in one flock. When they have done feeding, the whole lot will fly up and scatter like a fan, the different parties keeping together in small lots or strings which separate themselves, sometimes widely, over the sea. Severe frost and easterly wind, however, soon break up the companies when there are many young ones. A great mass will be ashore upon the mud; when the tide is flowing towards them, the wilder birds will give warning to go, set all the heads up, and start the lot by flying up; a few, perhaps some hundreds, will go off to sea, the rest will wheel round and settle again: as an old gunner used to say, "So much the better; some of the wild ones are sifting off." This is sometimes repeated several times till—on the tide bringing the punters within shot—most of the remaining geese are found to be young ones, which, being more greedy and careless, would not leave their feeding. These birds always seem hungrier in cold than in mild weather; easterly wind, too, if long continued, makes them eager to be in shore, as it prevents weed from drifting off to sea, so that they get nothing to eat without coming ashore for it. They pull up the weed when ashore, and eat by preference the roots or white part below the surface, leaving the green blade by cart-loads; with westerly wind this drives off to sea with the next ebb-tide, and furnishes them with plenty of food, day and night, far from land. In severe frost much thin ice forms on the mud, floats with the tide pulling-up weed, and gets packed into thick lumps, holding much weed. When the ice drifts off to sea the geese follow it, and we see hardly any for some days, when they come back again as thick as ever, probably having eaten all the weed as it thawed out of the ice.

In the way already described, in frosty weather and easterly wind, the companies of geese get much broken up, the birds probably being re-arranged in fresh combinations; and we then find some flocks nearly all old ones, and others mostly young ones. When there has been no hard weather it is a pretty sight, if you are outside the middle of a large lot coming off the mud, to see the great congregation coming and gradually spreading, the air being full of the various strings for perhaps more than half a mile wide, and as deep.

In the winter 1880-81, as I think I told you, we had not many White-bellied Geese; I had some difficulty in getting a good specimen for you and another for Capt. Feilden. There were very few young among them, but I think a larger proportion than among the black sort. Last winter we had hardly any white-bellied ones at all. I heard of one being shot among some black ones quite early in October, the only one I heard of being got. My man saw one among a flock of black soon after; and I saw only one white-bellied, a single bird, early in November or late in October, I forget which. One gunner, always on the coast, said he had seen only one little lot of the white-bellied sort, about a dozen, all the winter.

I am anxious to see what Stevenson says about the races of Brent Geese, but have not yet heard that his third volume is out. I saw a specimen in the British Museum, labelled "*nigricans*"—I think from Western N. America: it was high up in a bad light, but so far as I could judge, it has no claim to be a distinct species; its belly is blacker, but it seemed to differ less from our black kind than does the white-bellied. Capt. Feilden tells me that he thought he had sent a specimen from Nova Zembla: Mr. Sharpe cannot find it; it may possibly be in one of the chests packed to go to South Kensington, and I hope may turn up yet.

We had a good many Brent Geese this last winter, considering the mildness of the weather; quite early there were about 300, and more came from time to time till there were 1000 or more between the Blackwater and Crouch Rivers. Very few were shot. I heard from different places on the Suffolk coast that, on Dec. 13th and 16th, in foggy weather, there were great numbers of wildfowl on the sea, near land—Wigeon, Ducks, and Brent Geese. Many passed along the Essex coast about the same time, but made no stay. They were probably migrating southward cautiously in the fog.

Our coast is more disturbed than ever; people have taken to hunting the fowl in steam-launches, which have about beaten off the sailing-boats, and of course drive the birds away more, as they can go dead to windward, and without any wind; every bird that swims is driven away,—even such rubbish as Scoters,—except the Brent Geese, which keep well out of the boat's way, but will not, however, leave the country. I think they will soon cease to visit us, the disturbance getting worse and worse, and the feed failing more and more. The *Zostera marina* is gradually disappearing everywhere on the Essex coast, and in all the rivers. The first I heard of this disappearance was at Whitstable, in Kent, some forty years ago. The history of the growth and increase of mud-flats and weed, and breaking up of the former and disappearance of the latter, is curious. I do not know whether it would interest you.

The geese have less and less feeding-ground every year; there is hardly a place where they can sit at low-water and feed far enough from the edge not to be liable to be disturbed, yet the geese of late years come more regularly than thirty to forty years ago; then in mild winters we often saw none, or next to none, through whole seasons. I know not why this is; perhaps because, on account of a run of good breeding years, there are more of the birds; or perhaps, as there is much less of the weed they eat, there may be less of it adrift at sea—for the geese used sometimes to remain all the winter without coming within sight of land.

I fear you will be tired of so much about the Brent Geese; but I will make one more remark about them. They never seem to sleep; look at them when you will with a telescope, all day they are wide awake, and all night they seem equally busy, whether you find them near the land or go off to sea after them on a calm night. When far off at sea you may hear their noise the whole night, shifting its bearing with the tide. I never saw, or heard of anyone seeing, a Brent Goose with its head on its back as if asleep. Ducks and Wigeon may often be seen in this position.

We have had hardly any Wigeon outside last winter, though many have been taken in decoys. Were it not for these, giving a few a quiet place to induce them to stay and act at night as call-birds to those passing, we should hardly see any at all. I have not heard lately from Mr. ——; his decoy did not do so well as usual in the first part of the season. Many years ago the Wigeons' chief pond was one situated about a mile and a half to the south of this; indeed Wigeon were almost exclusively caught in the south decoy, the north one only holding some teal and ducks. Then some twelve or fourteen years ago the latter was improved, and the Wigeon took to it, hardly anything but Teal and a few Ducks frequenting the former wigeon-pond. This last season they have again taken chiefly to the south decoy again, where they have done well. The only explanation I could hear was that cattle and people were near the north pond when the Wigeon began to come. I had accounts of great numbers of Jack Snipe about Oct. 1st from Norfolk, Suffolk, and Essex. Another flight came later.

Was there any great flight of Woodcock last autumn on the Lincolnshire coast? I have heard of very few this way.

The almost complete absence of shore birds has been remarkable; they seem to come here less and less. In the severe winter of 1880-81 we had very few. I cannot account for their falling off. From the nature of the ground they frequent, shooting troubles them little; to some extent the change of ground, which does away with the food of wildfowl, may—and most likely does—diminish their food. Perhaps they are changing their time of migration.

NOTES AND QUERIES.

MAMMALIA.

Number of Dogs in the United Kingdom.—Few people have any idea how many dogs there are in this country. There is no canine census in England, but as the law requires a license of 7s. 6d. per annum to be paid for every dog in the United Kingdom (except puppies, shepherds' dogs, and dogs employed to lead blind persons), the annual revenue received from the dog tax should enable us to calculate how many dogs there are in this country. The total amount paid for dog licenses in 1888 was about £386,000 (more exactly, £386,603). This shows that there were 982,000 animals (exactly 982,941) paying duty in that year throughout the British Islands. The number must strike everyone as incredibly small—less than a million dogs in all the United Kingdom. The conclusion that there must be an immense number of animals whose owners habitually evade payment for them is strengthened when we remember that the population of Great Britain is now over 38,000,000. Thus it appears that there is only one dog to every thirty-eight persons in this country. The number of stray and ownerless dogs taken in the streets of the Metropolis is counted by thousands; and this again points to the fact that a large number escape the duty. There can be no question that it is amongst these ownerless and ill-cared-for creatures that rabies is most likely to be developed. The question is, in what way can the Revenue laws, which are now evaded, be best enforced, and our streets and roads kept clear of these useless and dangerous animals.

Cats' Eyes of different Colours.—With reference to the note which appeared in the last number of 'The Zoologist' (p. 16), on a cat with eyes of different colours, I think this is not a very unusual occurrence, as I have heard of one or two instances in which a similar peculiarity was noticed; in fact, I once possessed a kitten in which the iris of one eye was of a greenish hue, and the other dark brown. The Editor truly remarks that white cats with blue eyes are nearly always deaf. Some friends of mine had a Persian cat presenting a similar coloration both in eyes and fur, and was stone deaf; so much so, that if you fired a pistol close to its head it seemed hardly conscious of it. Its progeny showed a similar imperfection. Can this peculiarity be accounted for?—Robert Usher (Newcastle-on-Tyne).

Varieties of the Hare in Ireland.—A variety of the so-called Irish Hare was obtained in the Co. Kildare in December last, having the centre of the back black, shading into blackish grey on the sides, the only parts normally coloured being the sides of the mouth and a small space round the eyes, which are of the usual dark brown. A sooty-black Hare has been recorded by Thompson, in his account of Irish Mammalia, as having been killed in the same county in January, 1850. I have received several specimens of another variety which occurs persistently on the coast from Malahide to Balbriggan, Co. Dublin. In this the colour is a rich buff, shading into pure white on the lower parts; the eyes are a pale straw-yellow, with a greenish tint. Of this variety I have had a number of specimens, and have seen others in the market from time to time, but have never heard of it in any other district except that mentioned. I have at the present time a doe hare and leveret a few days old, both taken together, the young one exactly similar to the parent.—Edward Williams (2, Dame Street, Dublin).

Destruction of Vermin in Pennsylvania.—The legislature of Pennsylvania has recently passed a law by which it has been decided to pay the following capitation fees:—Wolves, 10 dols.; Wild Cats, 2 dols.; Foxes, 1 dol.; Minks, 25 cents. The fox-hunters are up in arms, and tried hard to prevent the passing of the Bill, but the interests of the poultry-farmers carried the day.

Food of Bats.—Mr Aplin is no doubt correct in attributing (p. 382) the small hoards of moths' wings which we so frequently find in outhouses and other sheltered places to the work of the Long-eared Bat; though the readers of 'The Zoologist' will recollect that it was at one time difficult to convince some correspondents that they were not collected by either spider or mouse. My office-porch is a favourite place for these bats to devour the bodies of their moths while hanging suspended from the roof, at the same time nipping off their wings, which fall to the doorstep, and may sometimes be seen in numbers the following morning—principally those of *Noctuæ*, together with a few beetle-elytra, and an occasional wing of the large spotted winged cranefly. These bats some summer evenings may be observed constantly flitting in and out, but some evenings seemed much more successful than others, just as the entomologist is with his captures at sugar. One summer evening, about August, some twenty-five years ago, I was much interested in watching a party of the Long-eared Bat flitting round a small arbutus shrub, the numerous blossoms of which had attracted great numbers of *Plusia gamma*. Many of these moths were actually taken on the blossoms, the bat closing its wings, folding down the ears, and making its meal there and then without quitting the tree. The Noctule, however, seems to masticate its food while on the wing, the grating of the teeth being plainly audible as it passes to and fro over-head. I saved the contents of the stomach of a Noctule I shot last September. It was a filthy looking mass when emptied into a cup of water, and required repeated washing to cleanse. Even now the insect-remains are covered with flocculent matter which prevents a free view of them under the microscope. One beetle-wing is nearly perfect, but the greater part of the mass is reduced to small proportions, which appear to me to belong to the Diptera; but of this I do not feel in the least certain, and shall be glad to submit the material to any one who would care to work it out and report.—WILLIAM JEFFERY (Ratham, Chichester).

CETACEA.

Bottle-nosed Whale in Wexford and Wicklow.—In September last I obtained at Feltard, on the Wexford coast, some bones of a whale, which I am told was stranded there about three or four years ago. Prof. Flower very kindly identified one of the bones, a vertebra, as belonging to a young Bottle-nosed Whale, *Hyperoodon rostratum.* Through the kindness of Mr. E. Williams, of 2, Dame Street, Dublin, I have obtained an account of two whales taken off the Wicklow coast in 1888. Mr. H. B. Rathbone, who bought them, writes as follows:—"The two Bottle-nosed Whales, caught on August 25th, 1888—a male, 19 ft., and a female, 18 ft. long, both young. The male weighed 34 cwt., and yielded 10 cwt. of blubber, which contained two-thirds oil, one-third skin and sinew. The oil weighed 145 gallons, and is the same specific gravity as sperm oil. There was also a small yield of spermaceti of good quality, but small grain. The beak was 18 in. long, furnished with lamellæ instead of teeth. The distance between the extreme points of the fork of the tail was also 18 in., and the front fluke 18 in. long and 8 in. broad." I am informed by Mr. A. G. More that this species of whale is the commonest species on the Irish coast.—G. E. H. BARRETT-HAMILTON (Kilmanock, New Ross, Co. Wexford).

Sperm Whale in Mayo.—Mr. Richard Widdicombe, of the Blackrock Lighthouse, Co. Mayo, has kindly sent me a tooth of a Sperm Whale, *Physeter macrocephalus.* It is between seven and eight inches long, and belonged to a whale, which, according to Mr. Widdicombe, was found dead in June, 1889, near Innishkea Island, Mayo. This whale was "about 60 feet long, with a tail about 13 feet broad." It was towed out to sea by order of the sanitary authorities.—G. E. H. BARRETT-HAMILTON (Kilmanock, New Ross, Co. Wexford).

BIRDS.

Tree Pipit in North Wales.—I can quite confirm what Mr. Haigh says (p. 20) about the abundance of this species in North Wales. I have found it in the spring most common in the wooded valleys of Carnarvon and Merioneth quite down to the sea. A remarkable circumstance in connection with the geographical distribution of the Tree Pipit is that not less than seventy miles westward from the Welsh coast there is a land which, so far as can be judged, seems as well adapted for its home as North Wales. In the oak-clad glens of beautiful Wicklow it might certainly be expected, yet it is absent from Ireland altogether, so far as I am aware, no example as yet having been obtained. The Irish avi-fauna offers some strange anomalies. I have found the Carrion Crow fairly common about Holyhead, yet in the sister island it is of extremely rare occurrence, and the records are few and far between.—JOHN CORDEAUX (Great Cotes, Ulceby).

[As to the supposed occurrence of the Tree Pipit in Ireland, see a note from the Rev. C. W. Benson (Zool. 1878, p. 348), and his observations in 'Our Irish Song Birds' (p. 109). But see also Mr. A. G. More's remarks in his 'List of Irish Birds' (p. 11). We are glad to learn that a new edition of this 'List' is in preparation.—ED.]

Tree Pipit in North Wales.—Referring to Mr. Caton Haigh's note (p. 17), testifying to the abundance of the Tree Pipit in parts of North Wales, notwithstanding the statements in some of our best books on birds, I may state that it is also very common in Breconshire. It is, with two or three exceptions, the most abundant of our summer migrants. Its favourite haunts here are hedgerow-trees and the borders of woods; it also makes use of the telegraph-posts and wires along the railways. In such situations its cheerful song may be heard, and its graceful flight seen every few hundred yards, from about the 18th of April to the middle of July. I have specimens of eggs of this bird representing eight different varieties, selected from different nests I have found here.—E. A. SWAINSON (Woodlands, Brecon).

Snipe and Quail Netting in Italy.—Sport in Lower Italy is, with each year, getting less and less important, so far as the Snipe family and Quails are concerned. This falling off is stated to be due to the large amount of netting that is carried on along the coasts, the birds being captured fresh from their long migratory flight. Around the swamps nets eight or ten feet high are erected, and there is a great outcry in consequence of the practice, which is actually carried on after the legal shooting season is ended.

Introduction of the Californian Quail in South Australia. — The Californian Quail (*Lophortyx Californianus*) may some day become the sporting bird of South Australia. There are a good many now at large in the colony, and a number are being acclimatised on an estate near Oakbank. At one time the Common Quail was very numerous, but, owing to the reckless way in which they were shot down at all seasons, the bird has become quite scarce. The only Quail-shooting worthy of the name now to be had in the colony is on the islands about Port Lincoln and one or two other places.

The Attitude of Grebes on Land.—On looking through last year's volume of 'The Zoologist,' I was reminded of my unfulfilled intention to send you some remarks anent the Rev. H. A. Macpherson's note on this subject (p. 230). Yarrell's statement, quoted by Mr. Macpherson, that "Grebes sit upright on the whole length of the tarsus," is all the more extraordinary, since the true state of affairs must have been pretty well known for many years. In Wood's 'Natural History,' the woodcut of the Crested Grebe (misnamed "Eared Grebe"), shows the bird with the tarsus at perhaps a greater angle than 22½° with the ground, and in the same work the Little Grebe is shown standing with it at 45° at least. These attitudes are, I should say, pretty correct. The Little Grebe carries its tarsus, if anything, even more upright. Anyone who has had the opportunity of studying the ways of a Dabchick when brought into a room, must have been struck with its activity, and the rapidity with which it will "patter" about the floor,—entirely contradicting Yarrell's remark that their "walk is constrained." In writing of this species in particular, indeed, the latter author, while he notes that in walking "its progression has been asserted to be still more embarrassed" [than its flight], records on the authority of the late Mr. Gatcombe and others, that one kept in the Zoological Society's Gardens "could run very swiftly from one place to another, and could stand upright, although in a somewhat knock-kneed position." I have only once had an opportunity of handling a living specimen of the Great Crested Grebe; in September, 1881. It could stand fairly upright (in a very similar attitude to the bird in Wood's book, before mentioned), with its tarsus well off the ground, but at this distance of time I cannot say just at what angle. In this position it was quite capable of walking. The bird was, however, very tired (it had been picked up in a field at a little distance from water), and when left to itself preferred to lower its body and rest on its breast. On being introduced to a large tabby cat, who had evinced great curiosity about the Grebe while the latter was confined in a hamper, the energies of *Podiceps*, however, at once rose to the occasion, and with a couple of well-directed strokes of his long sharp bill, he completely routed grimalkin, who after that could not be induced to come within two or three yards of the bird.—O. V. Aplin (Bloxham, Oxon).

Martinique Gallinule in Hants.—Although Mr. More has knocked the so-called "Irish" Martinique Gallinule on the head, *Porphyrio martinicus* must not be too hastily struck out of the British list. Mr. Edward Hart has recently discovered one killed in Hampshire. It has been recorded as a Purple Gallinule in 'The Zoologist' (1865, p. 9418), and was killed by Mr. C. Stares in a marsh while flapper-shooting in August, 1863. In the same month a *Porphyrio* of some kind was caught alive in Northumberland (*cf.* Hancock, 'Birds of Northumb. and Durham,' p. 126), which may have been another Martinique Gallinule. Mr. Hancock writes to me that he had but a very slight view of it, and that it was afterwards sent to London, and has since been lost sight of, but he saw enough to be sure that the plumage was perfect, and showed no signs of the bird having been in confinement. American naturalists give the Martinique Gallinule a character for migration, and those who are inclined to think that all Porphyrios found in this country must be escaped birds should read Lord Lilford's remarks in the 'Birds of Northamptonshire' (part ii. p. 39). Messrs. Baird, Brewer, and Ridgway, writing of the Martinique Gallinule (Birds of N. Amer. p. 385), remark, "it is a great wanderer, or in its migrations is driven by tempests to distant points," and refer to some being met with at sea. Incidentally Mr. More mentions that he has discovered a hitherto unrecorded Irish Green-backed Gallinule, *P. smaragdonotus*, killed so long ago as October, 1873. This almost synchronises with another recorded by Mr. Hancock (*l. c.*), caught in Northumberland in August, 1873, and which, though mentioned in his list as a Purple Gallinule, has since been ascertained by him to have been a green-backed bird, being doubtless also *P. smaragdonotus*. It is only fair, however, to add that about the time it was captured, Mr. Hancock heard that "a bird of the kind" had escaped from a sailor at Newcastle. But, setting this aside as doubtful, there still remain nine unimpugned instances of the occurrence of *P. smaragdonotus* in the British Islands,—*viz.*, one in Scotland, two in Ireland, and six in England,—besides six instances of the occurrence of *Porphyrio cæruleus*, *viz.*, one in Scotland, one in Ireland, and four in England. Mr. More has alluded to an example of *Porphyrio cæruleus* in Mr. Marshall's collection It was bought by him at Mr. Troughton's sale in 1869, and subsequently given to Mr. Murray Mathew, who some years ago obliged me with a sight of it. In the sale catalogue it is entered as:—"539. Purple Moorhen, 1, killed in Ireland, 1846, &c., Annals of Natural History." Some time afterwards I wrote to the late Mr. Chute to ask if this was his bird; he replied in the negative, but gave me several interesting particulars relative to the capture of his specimen in Kerry. These particulars are at Mr. More's service for his new List.—J. H. GURNEY, JUN. (Keswick Hall, Norwich).

Crane near Bridgwater.—A fine specimen of the Crane, *Grus communis*, was shot at Country-Sea-Wall, one mile eastward of Stolford, near Bridgwater, on the 5th December last, by Mr. Richard Chilcott, of that place. It was taken to Sir Alexander Acland Hood, Bart., St. Audries, for whom it has been preserved by Mr. Wm. Bidgood, Curator of the Taunton Museum. About twenty-four years ago another Crane was shot near Ham-Sea-Wall, half-a-mile westward of Stolford, which is now in the collection of Mr. Chas. Haddon, of Taunton. These particulars were communicated to one of the Taunton papers by Mr. James Rawlings.—M. A. MATHEW (Buckland Dinham, Frome).

Crossbills in Ireland.—The years 1888-89 will always be remembered in the ornithological annals of this country for the remarkable invasion of two rare birds of strange and wandering habits—Pallas's Sand Grouse and the Crossbill. Crossbills for the last two years have been found generally dispersed over Ireland, and, in a few instances, have been found breeding. No doubt they have nested also in many instances unobserved. Of this fact I have met with distinct proof. On June 10th last, just outside the town of Clonmel, but on the Co. Waterford side of the river Suir, I met with a considerable flock of Crossbills, nearly all young birds just fledged, in striped brown plumage, feeding on the catkins of some large elm trees. There seemed to be three or four family parties, the parents with the young, and these had no doubt been reared not far away. Afterwards I observed some of the birds again on the Tipperary side of the river. On July 28th a large number of Crossbills appeared suddenly at Shillelagh, Co. Wicklow—the first time I have found them in this locality. These appeared to be in almost all stages of plumage, some red, others gold, but the majority in the striped brown of the young bird. One which I shot was a fine male, very brilliantly coloured: wings and tail black, with faint greenish borders; throat, breast, and sides bright orange-gold; head, back, and upper tail-coverts golden yellow, with orange reflections on head and tail-coverts, and a tendency to olive on the back and shoulders. I leave it to naturalists of greater experience to tell the age of this specimen. The actions of these birds, whilst feeding are very amusing. The loud cracking of the fir-cones, split open by their powerful beaks, is audible to a considerable distance, while the birds themselves are usually quite invisible among the thick pine-branches, where they cling very closely, and are not easily disturbed. The ripe cone is wrung from the tree by a twist of the beak and then grasped tightly under the claws, while with the tongue and crossed mandibles the bird extracts the seeds. I noticed that the birds bite off numbers of the green cones and let them drop to earth, perhaps merely to remove them out of the way. The rattling of these among the branches, and on the ground as they fall, often leads to the discovery of the flock. Though generally silent while feeding, these birds are very noisy on the wing, and their loud, rattling call, "chick, chick, chickup," is not likely to be forgotten when once heard. I frequently heard the males utter a short song, not unlike that of the Greenfinch, but louder—sometimes on the wing. Their restless actions,—climbing, clinging attitudes when feeding, chattering twitter, and predilection for fir-trees,—all remind one strongly of the Siskin. They have remained about this place since their first appearance, and, being undisturbed, will very probably stay to breed at the beginning of spring, as from the abundance of spruce and Scotch fir, this district is eminently suited for them.—Allan Ellison (Shillelagh, Co. Wicklow).

Montagu's Harrier breeding in Suffolk.—Two pairs of these birds frequented Scott's Hall Estate (Westleton) last season. One pair nested and laid three eggs, and the other pair would no doubt have done so had they been allowed to remain unmolested. On May 25th a hawk was trapped and stupidly destroyed. From the description I have had of it, I have no doubt it was a female of this species. On May 29th a male Montagu's Harrier was trapped, and another on the 31st; both these birds were forwarded to Mr. Gunn for preservation, and both, from the frayed and worn condition of their primaries and tail-feathers, showed that they had mates in the neighbourhood. On May 30th one of the keepers flushed a hawk from its nest on Dunwich Common. The bird, he said, was not more than three or four yards from him when it rose; he described it as brown on the back, lighter underneath, and larger than the male Harrier he had previously trapped. The nest, in the middle of a clump of heather, was of very simple construction—a slight depression in the ground, lined with a few dead heather-twigs and a little grass. There were three eggs in it of a bluish-white colour. Two days after, on again approaching the spot, the keeper found the birds had forsaken the nest, the eggs being quite cold. He therefore took them, as he considered it useless leaving them to be destroyed by Rooks or ground vermin. They were sent to Mr. Gunn, who identified them as those of Montagu's Harrier, and they were slightly incubated. These with the birds and nest are now preserved in my collection. As the nesting of Montagu's Harrier may now be considered of rare occurrence in the eastern counties, the foregoing notes may be of interest.—Mentieth Ogilvie (Sizewell, Leiston).

Eared Grebe near Scarborough.—A specimen of this somewhat rare visitant was shot from a fishing-coble, near Scarborough, on Dec. 16th, and is now in the possession of Mr. Head, of this town, who states, that on dissection, it proved to be a female, with eggs in the ovary in an advanced stage. The shape of the bill in this species is a marked feature, distinguishing it from the Sclavonian Grebe, and reminding one of the bill of the Turnstone, or that of a Thrush when the natural position is reversed, *i. e.*, with the under mandible uppermost. This is the only example, to my knowledge, that has been obtained near Scarborough, though the Sclavonian Grebe is not uncommon from autumn to spring.—R. P. Harper (Scarborough).

Pectoral Sandpiper: Correction of Misprint.—In my note on the Pectoral Sandpiper, see 'The Zoologist' for December last (p. 452), there occurs a misprint in the date. For "Aug. 26, 1887," read "Aug. 26, 1889."—T. E. Gunn (84 & 86, St. Giles Street, Norwich).

Short-toed Lark at Great Yarmouth.—A male example of the Short-toed Lark (*Alauda brachydactyla*), was shot near South Breydon Wall, Great Yarmouth, on Nov. 7th last, and is, I believe, the first that is known to have occurred in Norfolk.—G. Smith (North Town, Great Yarmouth).

SCIENTIFIC SOCIETIES.

Linnean Society of London.

December 19, 1889.—Mr. J. G. Baker, F.R.S., Vice-President, in the chair.

Messrs. S. A. Moore and J. J. Walker, R.N., were admitted, and Messrs. C. Curtis and P. Groom were elected Fellows of the Society.

Prof. P. M. Duncan made some supplementary remarks on a specimen of *Hyalonema Sieboldii*, which he had exhibited at a previous meeting.

Mr. W. Hatchett Jackson exhibited and gave an account of an electric Centipede, *Geophilus electricus*, detailing the circumstances under which he had found it at Oxford, and the result of experiments which he had made with a view of determining the nature and properties of a luminous fluid secreted by it. This he found could be separated from the insect, and could be communicated by it to every portion of its integument. An interesting discussion followed, in which Mr. Breese, Mr. A. W. Bennett, Prof. Stewart, Mr. A. D. Michael, Dr. Collingwood, Mr. Christy, and Mr. J. E. Harting took part. The last-named speaker pointed out that the observations made by Mr. W. Hatchett Jackson on this Centipede had been long ago anticipated by Dr. Macartney in an elaborate paper on Luminous Insects published in the 'Philosophical Transactions' for 1810 (vol. 100, p. 277).

A paper was then read by Mr. T. Johnson on *Dictyopteris*, in which he gave a detailed account of the life-history of this Brown Seaweed, with remarks on the systematic position of the *Dictyotaceæ*. Dr. Scott, Mr. George Murray, and Mr. A. W. Bennett criticised various portions of the paper, and acknowledged the important scientific bearing of the facts which had been brought out by Mr. Johnson's careful and minute researches.

In the absence of the author, Mr. W. P. Sladen detailed the more important portions of a paper by the Rev. John Gulick, "On Intensive Segregation and Divergent Evolution in Land Mollusca," a paper which might be regarded as a continuation and amplification of the views which the same author had expressed in a former paper published in the Society's Journal last year (vol. xx., Zool. pp. 189—274).

Jan. 16, 1890.—Mr. J. G. Baker, F.R.S., Vice-President, in the chair.

Mr. S. Lithgow was elected, and the following were admitted Fellows of the Society:—Messrs. C. W. Turner, J. T. Tristram Valentine, William Rome, and Major A. R. Dorward.

Mr. Clement Reid exhibited and made some remarks upon a collection of fruit of *Trapa natans* from the Cromer Forest Bed at Mundesley.

Mr. J. G. Baker exhibited and described a collection of cryptogamic plants from New Guinea, upon which Mr. A. W. Bennett and Capt. Elwes made some critical remarks.

In the absence of the author, Mr. A. Barclay, a paper was read by Mr. B. D. Jackson on the life-history of a remarkable Uredine on *Jasminum grandiflora*. A discussion followed in which Mr. A. W. Bennett and Prof. Marshall Ward took part.

This was followed by a paper from Mr. Edward E. Prince, "On certain protective provisions in some larval British Teleosteans."

ZOOLOGICAL SOCIETY OF LONDON.

January 14, 1889. — Prof. A. NEWTON, F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of December, 1889.

Mr. Sclater exhibited and made remarks on a specimen of a very singular Duck from N.E. Asia, apparently referable to the genus *Tadorna*, sent to him for determination by Dr. Lütken, of Copenhagen. After a careful examination, Mr. Sclater was inclined to think that it was probably a hybrid between *Tadorna casarca* and *Querquedula falcata*.

Mr. Sclater exhibited and made remarks on a set of small birds' bones obtained from beneath some deposits of nitrate in Southern Peru, transmitted to the Society by Prof. W. Nation.

Mr. David Wilson Barker exhibited and made remarks on some specimens of Teredos taken from submarine telegraphic cables off the Brazilian coast.

Prof. F. Jeffrey Bell exhibited and made remarks on some living specimens of *Bipalium*, transmitted to the Society by the Rev. G. H. R. Fisk, of Capetown.

A communication was read from Mr. R. Lydekker, containing an account of a new species of extinct Otter from the Lower Pliocene of Eppelsheim. The author described part of the lower jaw, which he had previously referred to *Lutra dubia*, from the deposits indicated. Having, however, now seen a cast of the type of the latter, he found that the present specimen indicated a distinct species, for which the name *L. hessica* was proposed.

A communication was read from Prof. Bertram C. A. Windle and Mr. John Humphreys, on some cranial and dental characters of the Domestic Dog. The paper was based on the results of the measurements of a large number of dogs' skulls of various breeds. Its object was to ascertain whether cranial and dental characteristics afforded sufficient information to permit of a scientific classification of the breeds, or would throw any light upon their origin. The conclusion so far arrived at was that interbreeding had been so extensive and complicated as to make it impossible to distinguish the various forms scientifically from the characters examined. Several points with regard to the shape of head and palate and the occasional occurrence of an extra molar were also touched upon.

Mr. G. A. Boulenger read the fourth of his series of contributions to the Herpetology of the Solomon Islands. The present memoir gave an account of the last collection brought home by Mr. C. M. Woodford. Besides known species, this collection contained examples of a new Snake, proposed to be called *Hoplocephalus elapoides*.

A second paper by Mr. Boulenger contained a list of the Reptiles, Batrachians, and Freshwater Fishes collected by Prof. Moesch and Mr. Iversen in the districts of Delhi and Langkat, in North-Eastern Sumatra.

Dr. Günther read a paper entitled "A Contribution to our Knowledge of British Pleuronectidæ." The author described the true *Arnoglossus grohmanni*, a Mediterranean Scald-fish recently discovered by the Rev. W. S. Green on the Irish coast, and quite distinct from *Arnoglossa lophotes*. Dr. Günther also stated that the Mediterranean Lemon-Sole, *Solea lascaris*, was specifically identical with the British species, *S. aurantiaca*, but was distinct from that of the Canary Islands and Madeira, *S. scriba;* and gave it as his opinion that the Mediterranean *S. lutea* and British *S. minuta* cannot be separated by any constant character.—P. L. SCLATER, *Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON.

January 15, 1890, *the* 57*th Annual Meeting*.—The Right Honble. Lord WALSINGHAM, M.A., F.R.S., President, in the chair.

An abstract of the Treasurer's accounts, showing that the finances of the Society were in a thoroughly satisfactory condition, was read by Dr. Sharp, one of the Auditors. The Secretary then read the Report of the Council, from which it appeared that the Society had lost during the year several Fellows by death and had elected 24 new Fellows; that the volume of Transactions for the year extended to nearly 600 pages, and comprised 23 memoirs, contributed by 20 authors and illustrated by 17 plates; and that the sale of the Society's Transactions and other publications is on the increase. It was then announced that the following gentlemen had been elected as Officers and Council for 1890:—President, The Right Honble. Lord Walsingham, M.A., F.R.S.; Treasurer, Mr. Edward Saunders, F.L.S.; Secretaries, Mr. Herbert Goss, F.L.S., and the Rev. Canon Fowler, M.A., F.L.S.; Librarian, Mr. Ferdinand Grut, F.L.S.; and as other Members of Council, Mr. J. W. Dunning, M.A., F.L.S., Captain H. J. Elwes, F.L.S., Mr. F. DuCane Godman, M.A., F.R.S., Dr. P. B. Mason, F.L.S., Prof. R. Meldola, F.R.S., Mr. R. South, Mr. Henry T. Stainton, F.R.S., and Mr. Roland Trimen, F.R.S. Lord Walsingham nominated Mr. J. W. Dunning, Captain Elwes and Mr. F. DuCane Godman, Vice-Presidents for the Session 1890—1891, and then delivered the annual Address.—H. Goss, *Hon. Secretary*.

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